

# **AH DV1 USER MANUAL**

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## **1. Foreword**

This guide has been prepared taking into account AH DV1 Freezer. In general the following details were examined

- How to use the cabinet
- Specifications
- Installation and assembly
- Product information and recommendations for users
- Maintenance operations

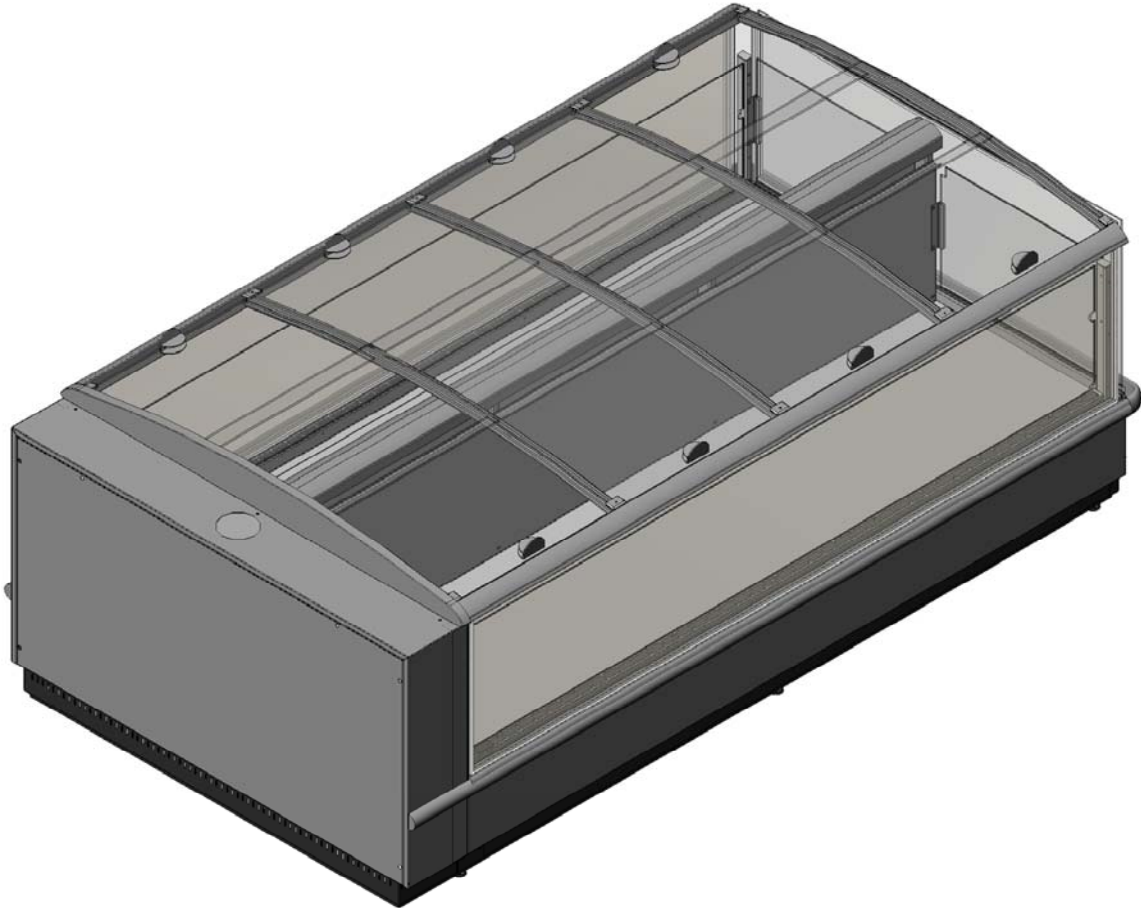
The manufacturer does not carry any responsibility in the following conditions

- Cabinet misuse
- Faulty installation
- Electrical effects
- In the case of periodic maintenance performed
- Operational changes
- Original spare parts not used
- Failure to comply with the information

Note: Electricity-related applications, it is dangerous for your life  
Everyone should read this guide before uses the cabinet

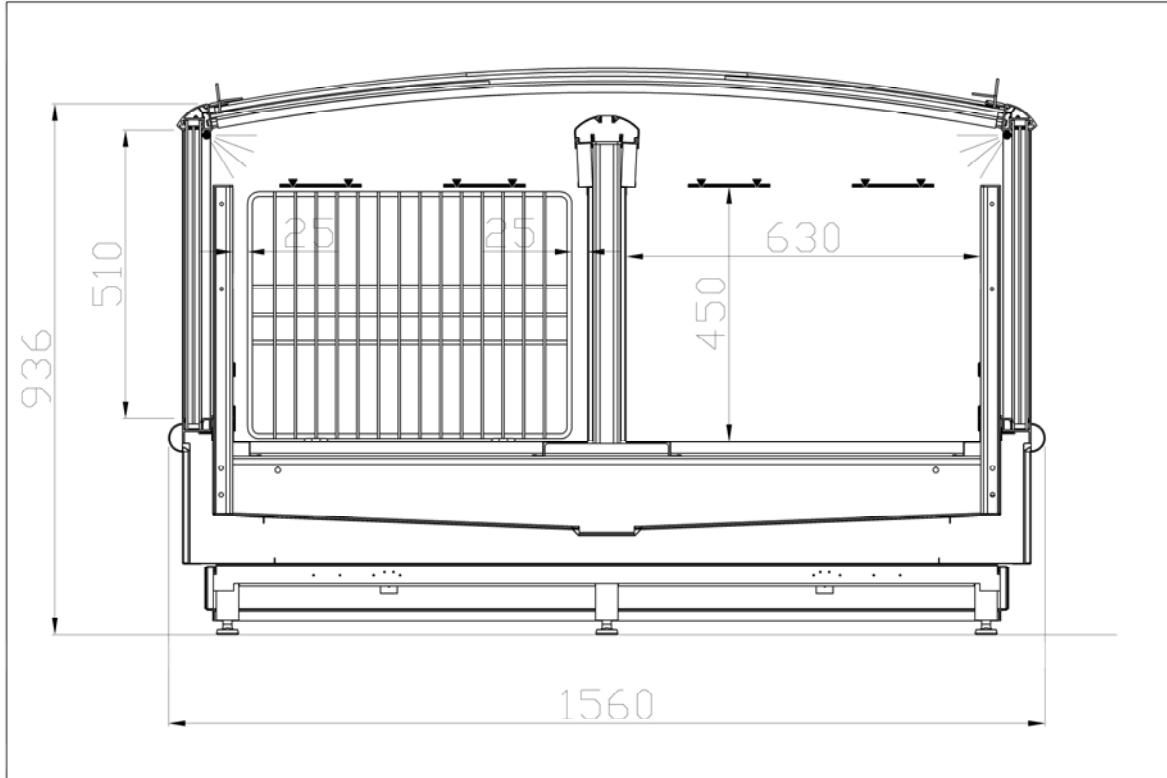
## **2. Presentation**

AH DV1 case produced for frozen foods. This cases is suitable to use for large supermarkets and hypermarkets with high performance and large display area. This case have been designed to able to meet all customer expectation.

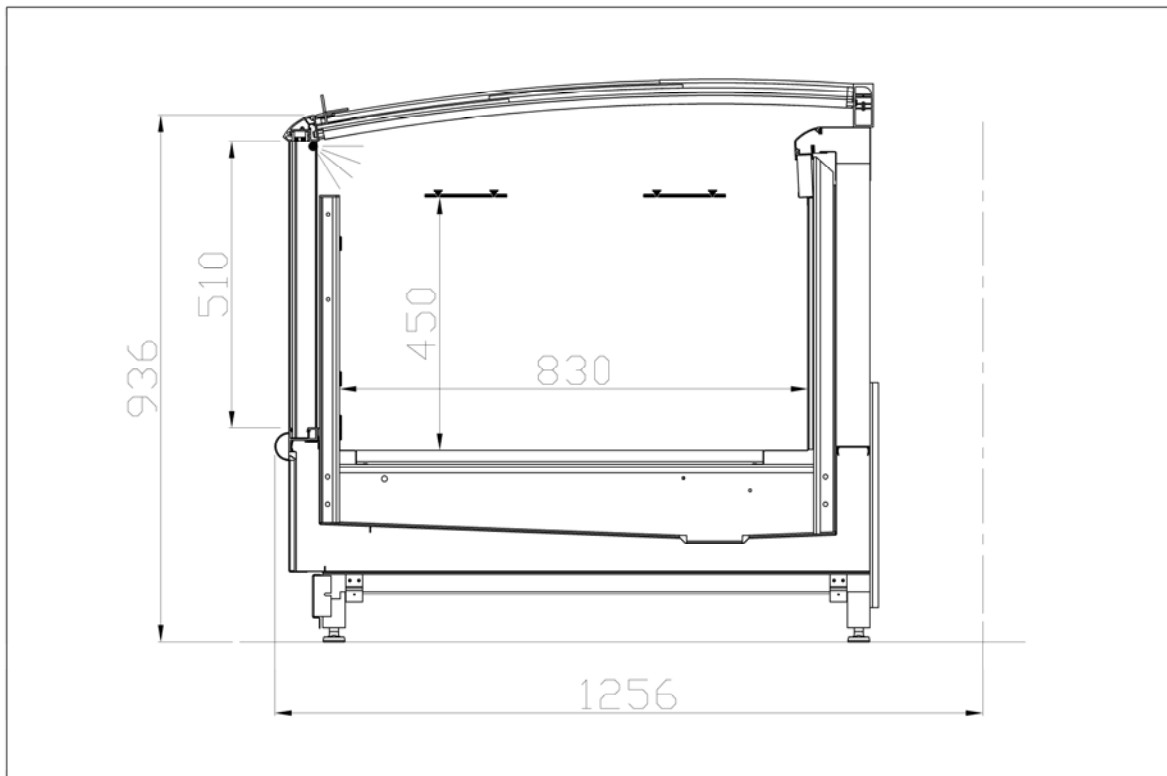


### 3. Specifications

Cross Section Drawing



### CE cross section drawing



**TECHNICAL DATA SHEET**

**TECHNICAL DATA SHEET - AH DV1**

<b>TECHNICAL DETAILS</b>	<b>2500 mm</b>	<b>3750 mm</b>	<b>Crown End</b>
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<b>Refrigeration Load</b>			
Case Temp (°C)	-18/-27	-18/-27	-18/-27
Evap Temp (°C)	-35	-35	-35
Duty (kW)	1,8	2,55	0,49
Expansion Valve (R404)	AKV 10-5	AKV 10-6	AKV 10-3
Pipe Size - Suction	19 mm	22 mm	19 mm
Pipe Size - Liquid	10 mm	12 mm	10 mm
Pipe Size - Drain		50 mm	
Cubic Capacity (dm <sup>3</sup> )	1418	2127	523
TDA (prEN ISO 23953-2)	3,21	4,81	1,58

<b>Defrost Details</b>			
Defrost Type	Electric	Electric	Electric
Duration (minutes)	55 min x 1	55 min x 1	55 min x 1
Termination	Temp	Temp	Temp

<b>Defrost Heaters</b>			
Evaporator (Coil)	6 x 800W	6 x 1200W	6 x 600W
Frame (Schott Termofrost)	-	-	-
Doors (Schott Termofrost)	-	-	-
Front Glass	2 x 102W	4 x 32W	42W
Side Glass	42W	42W	2 x 52W
End Walls	-	-	-
Body	-	-	-
Water Drain	50W	75W	38W
Trim Heaters	2 x 124W	4 x 94W	71W
Trim Heaters (side walls)	71W/per sidewall	71W/per sidewall	2 x 71W
Air Intake	3 x 75W	3 x 112W	2 x 42W

<b>Electrical / Fans</b>			
Supply	380 Volt		
Led Lighting (4200K)	4 x 19W	4 x 28W	19W
Evaporator Fans	3pcs./1100 rpm	4pcs./1100 rpm	2pcs./1500 rpm
EBM M1G055-BD91-18 (11Watt)	AO 154mm /22°	AO 154mm /22°	AO 154mm /22°

<b>Design Conditions</b>					
Temp (°C)	25	Humidity (%)	60	Cross Draft Air Speed (m/s)	0.2

	TECHNICAL DOCUMENTATION	CHAPTER REVISION STATUS					
		ORD.	DATE	CHANGE ORDER	ORD.	DATE	CHANGE ORDER
PRODUCT	AH DV1	A	24.09.09	ULAS GUDUCU	D		
DATE of 1st ISSUE	28.04.09	B			E		
ORDER	ULAS GÜDÜCÜ	C			F		

**4. Norms and Certifications**

Used as a reference for cabinet certifications and approved norms; **EN 60204-1; EN 60439-1; EN 60439-2**

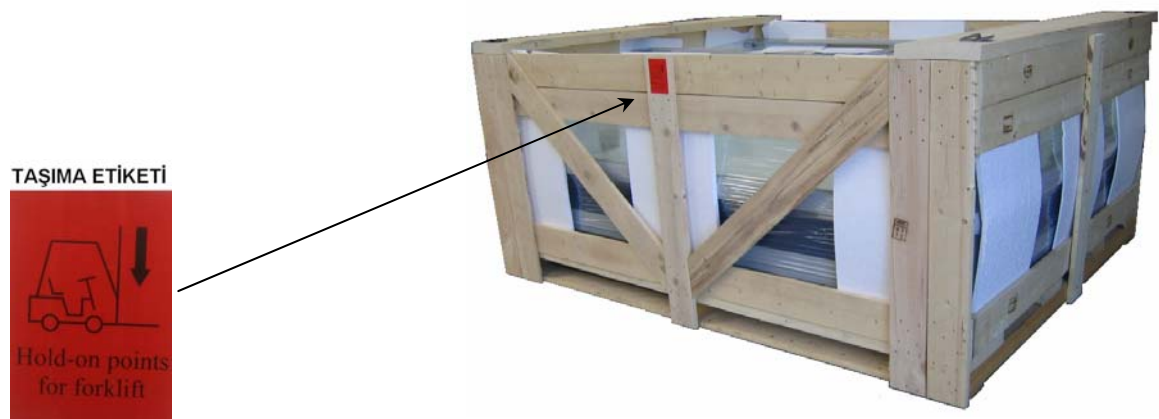
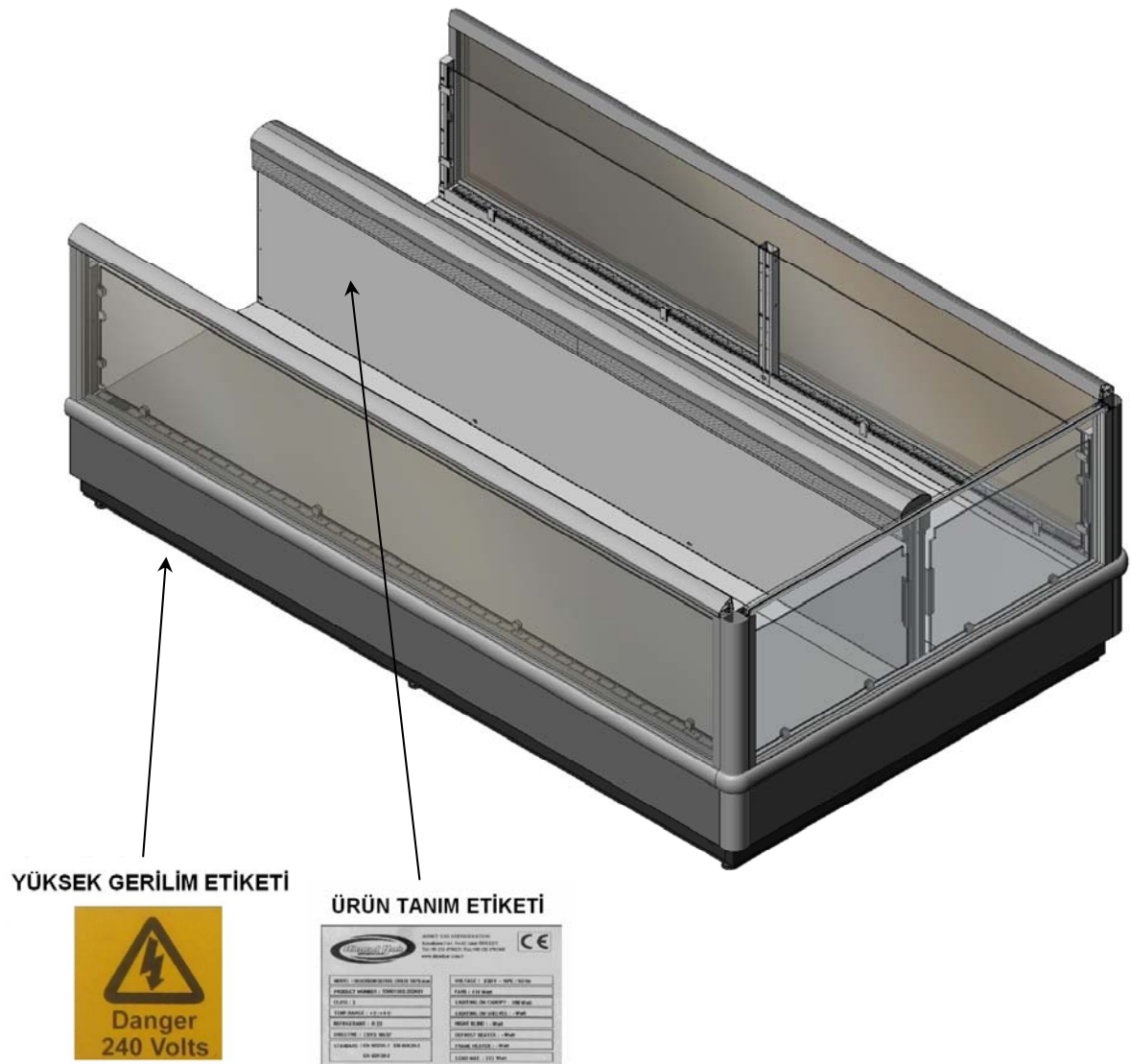
**CLIMATIC ENVIRONMENTAL CONDITIONS (EN 441-4)**

These cabinet ambient temperature was tested according to class 3.

Climatic conditions	Dry air temperature	Relative humidity	Dew point
1	16°C	%80	12°C
2	22°C	%65	15°C
3	25°C	%60	17°C
4	30°C	%55	20°C
5	40°C	%40	24°C
6	27°C	%70	21°C

This case has designed according to following directives **EEC 73/23 , EEC 98/37**

## 5. Alert and identification labels on the cabinet



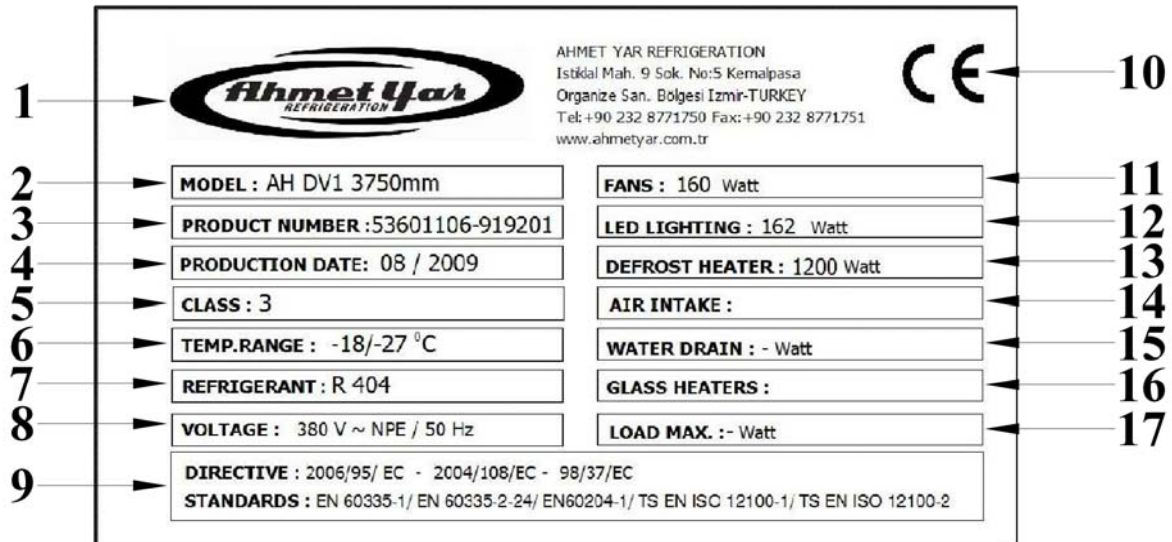


### High voltage label

High voltage label is located on the bottom of the cabinet, at the top electrical box.

### Product Description label

Description label is located at the middle of case on the same side with electrical box and it is including all technical information.



- 1 Manufacturer logo and address information
- 2 Product model
- 3 Product's serial number
- 4 The product's production history
- 5 Conditioning of the product class
- 6 Minimum temperature of the product
- 7 Refrigerants used in the product
- 8 Operating voltage values
- 9 Product certificates and in accordance with the directives approved
- 10 Product certification and quality certificates of manufacturer
- 11 Evaporator fan power
- 12 Lighting electrical power
- 13 Defrost the electric power resistance
- 14 Electric power of blowing resistance
- 15 Electric power of drainage resistance
- 16 Electric power of glass resistance
- 17 Total electric power

### Transport label

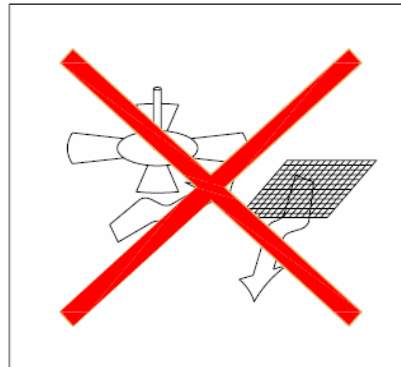
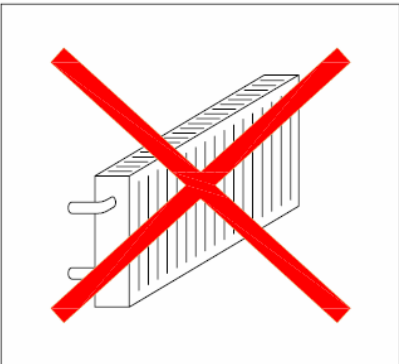
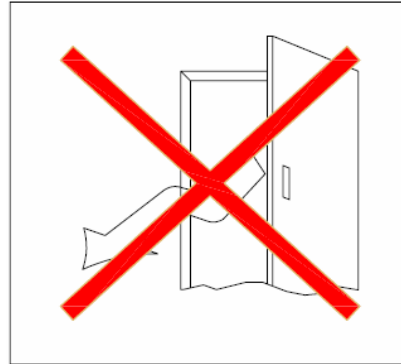
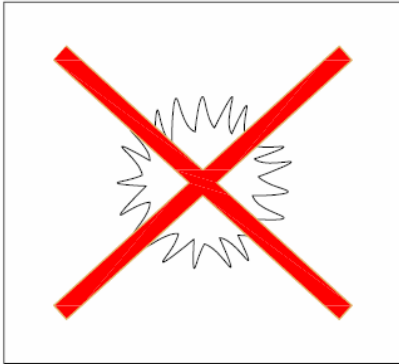
Cabinet is fitted with a pallet for transport. There is transport label at the back side of case.

**6. Mounting and environmental conditions**

Please Follow the instructions below for assembly

Cabinet positions that do not leave and do not mount.

- If there is an explosive gas
- near heat sources
- If there is air flow



## 7. Multiplexing of two cases

For combining two or more cabinets, please follow the following order.

- Remove the side walls (if there is any)
  - Bring cabinets side by side.
  - Remove palette. Set foot height of cabinet then bring them to scale. Using a spirit level to check the accuracy of case. Check the balance by moving the Cabinet.
- Please follow the steps below for multiplexing of two cabinets.

### ➤ Side Pillar Connection

-Please use connection parts at bottom of pillar and tighten with keys for connection. (figure 1, 2 ve 3) Be used connection parts and parts cabinet location as shown at figure 4

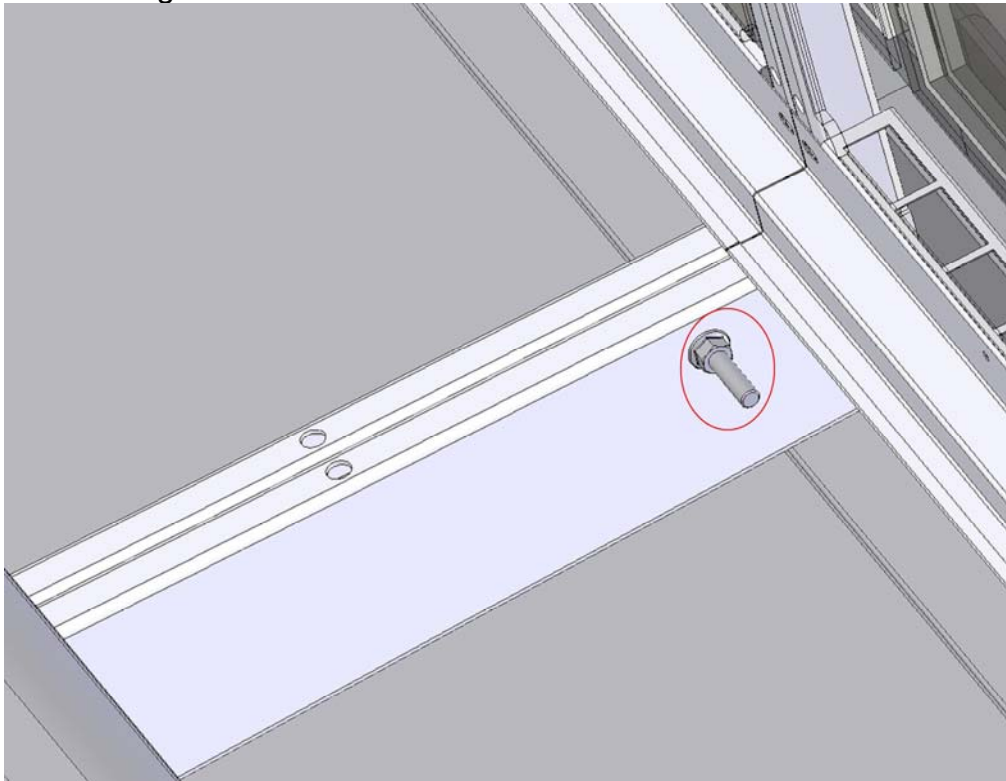


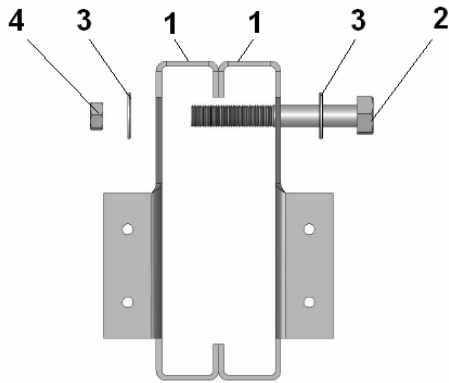
Figure 1



Figure 2



Figure 3



POS NO	PARTS NAME	UNIT
1	Cabinet Side Pillar	On the Cabinet
2	M10x110 Hexagon-headed bolt	1
3	M10 Washer	2
4	M10 Nuts	2

Figure 4

➤ **Body Connections**

Two cabinet have to screwed with connection sheet from cabinet as shown figure 5



Figure 5

## 8. Connection of Side walls

Please placed the insulation to inside of pillar base and stick adhesive tape to body before sidewall connection.(figure 6).

You can do side connection from as Shown point in Figure 7 and 8 with M12x100 plastic bolts and nuts to connect.

Place the support plate inside to side thermopane profile (figure 9) and screwed to the uprights.(figure 10)



Figure 6



Figure 7



Figure 8

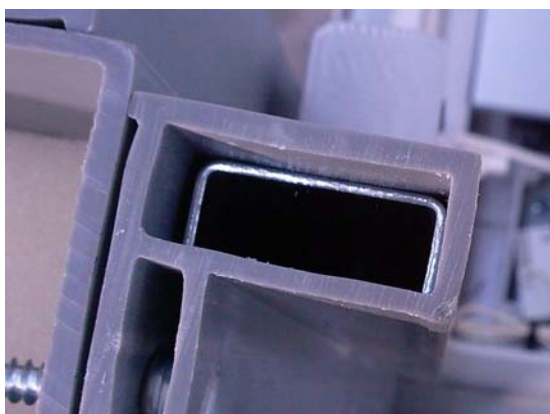


Figure 9



Figure 10

## 9. Kickplate connection

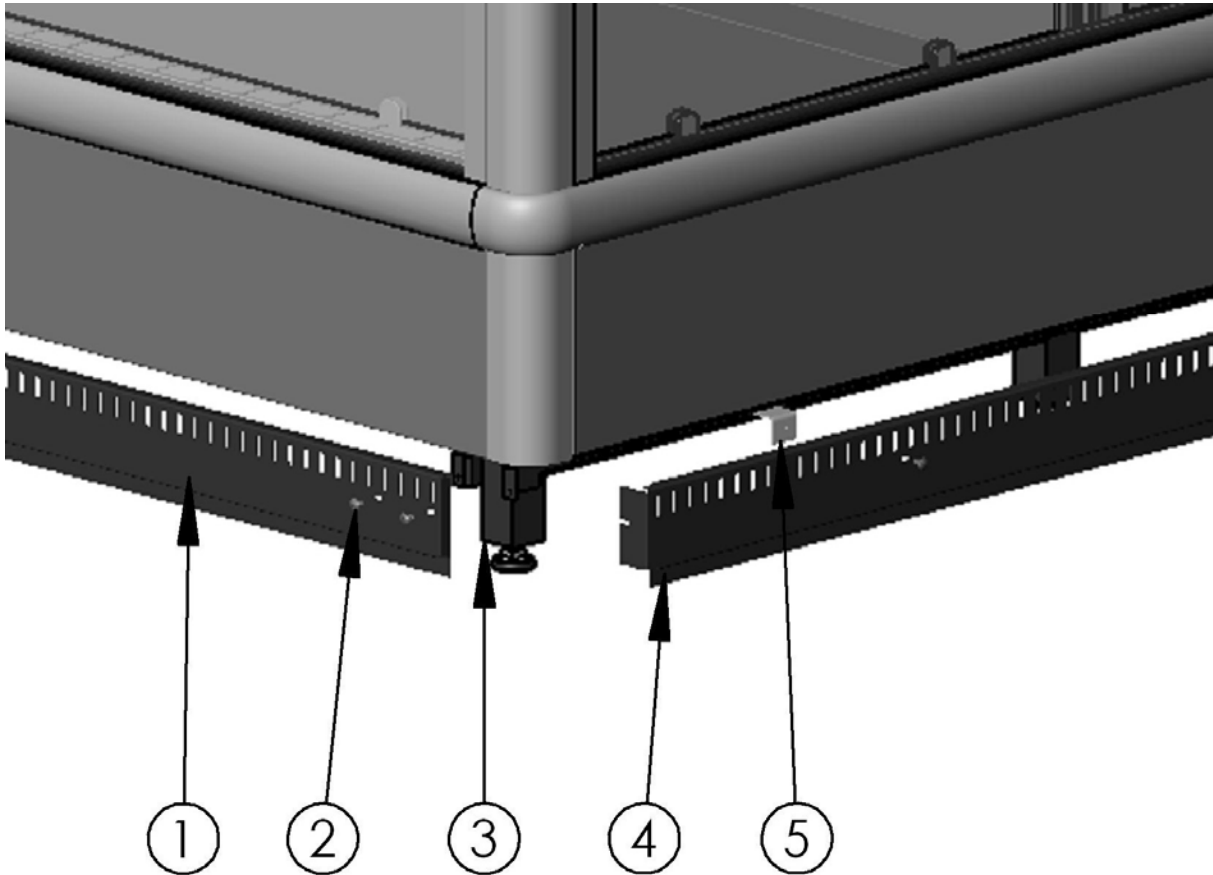


Figure 11

POS NO	PART NAME	UNIT
1	Front Kickplate	1
2	4,2x13 Screw	12
3	Cabinet Leg	On the cabinet
4	Side Kickplate	2

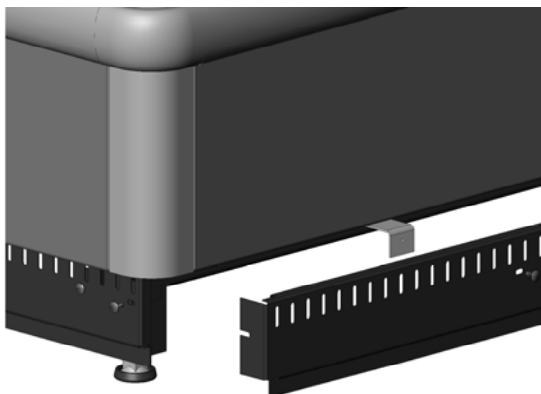


Figure 12

First, please connect front kickplate from kickplate connection point to leg. Please put plastic tires to front kickplate then hold side kickplate which will coincides with connection holes as shown in figure 12 and use screw for connection. Please put plastic tires to side kickplate. Connection parts as shown in figure 11.



## 10. Lighting

Used LED lighting inside the case.

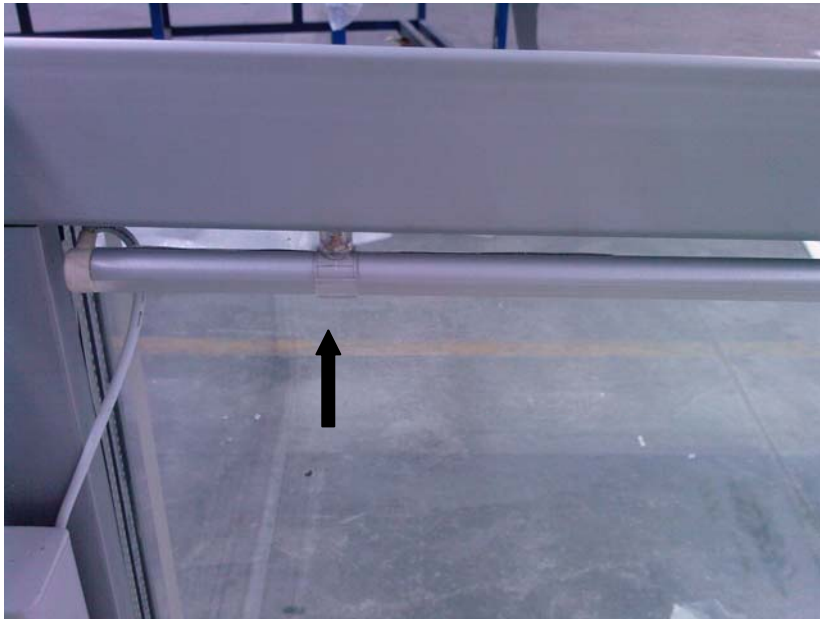


Figure 13



Figure 14

Inserted the LED lamps into the case

First plastic led lamp connection (figure 14) is screwed to the sliding glass plastic. LED lights should pressed up and installed to the connection plastic (figure 13)

## 11. Electrical Connection

Electrical and pilot box in the closet long edge, is located in a sub. (Figure 15)



LED lighting electric box is located at the middle wall. (figure 16)



Figure 16

When making electrical connections should be examined following details.

Important! Before making electrical connection cabinet defined label and product information, books and electrical diagrams for further details.

- Protected automatically switches should used against electrical currents.
- In an emergency user should know the location of accessible key.
- Grounding should be at the electrical system
- Maximum voltage change must guaranteed of  $\pm 6\%$
- Thickness of the cable power lines must be at least  $2.5 \text{ mm}^2$  and high current must be able to carry.
- Power line cable should not be long then 4-5m, depending on the case if cable length must increased the cable cross-section must increased.
- As the temperature and humidity to be suitable for cabinet.  
Make sure you have the climate class 3 (+25 o C, RH 60%)

Electricity staff should have electrical certificate



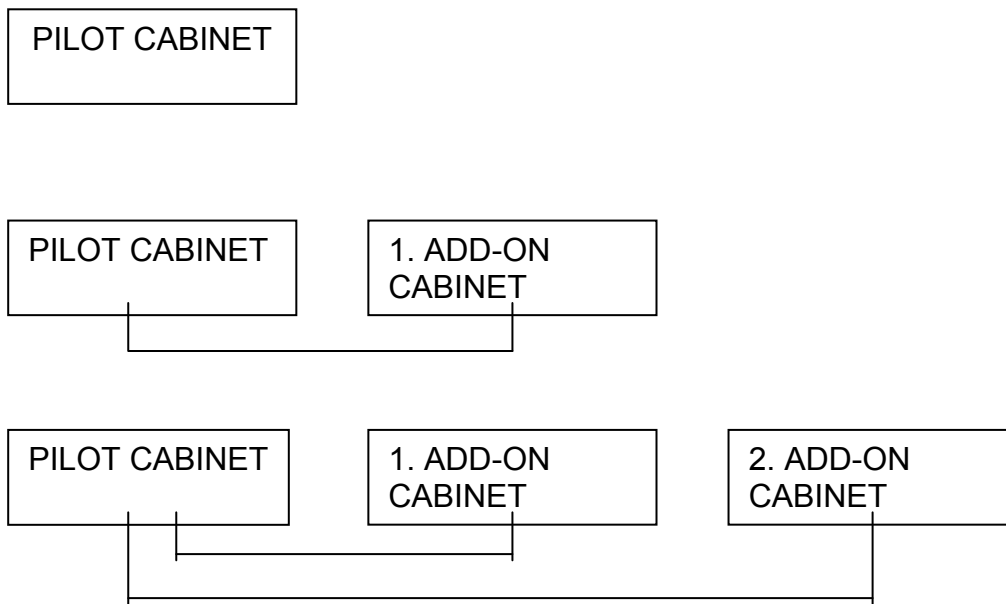
## 12. Temperature Control

Temperature control done with hair bulb in the front suction.



Figure 17

Important: a pilot control module must make with a max of Section 3.



### 13. Cabinet Merchandising

False increases the formation of ice storage. Make sure that storage products does not cover air return grill. Closed air holes reduces the capacity of the cabinet and defrost process lengthens(Fig. 18)

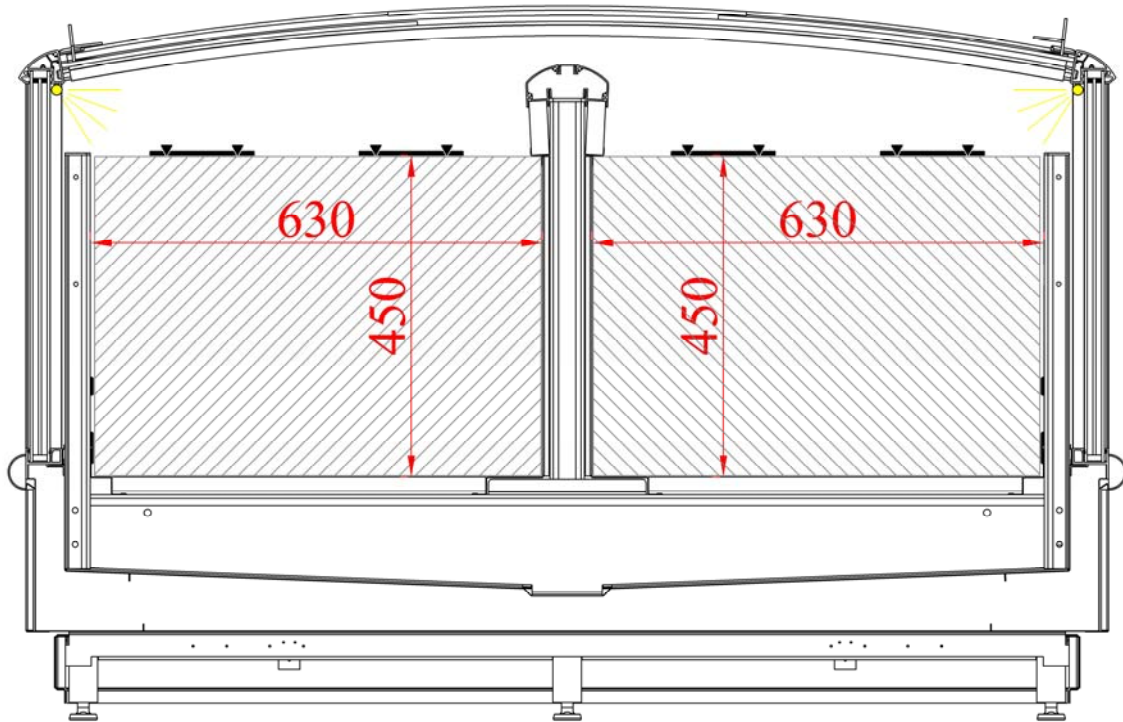


Figure 18

### 14. Defrost and drain

These procedures prevent the cabinet sweats, smell bad inside of case, escape cooled air.

On the AH DV1, cabinet that the ice melts is carrying out through resistance.

Thermostat is being assembled cabinet by experts and set changes not allowed.

After end of the ice resolve cabinet will start to work automatically.

To taken of defrost water

Cabinet shipped with, drainage on the part of drain hose is attached (fig. 21) turn this drainage to clockwise side and makes the connection.

-Connect the hose to the edge of the water goes.

- Before first run placed some water to drainage.

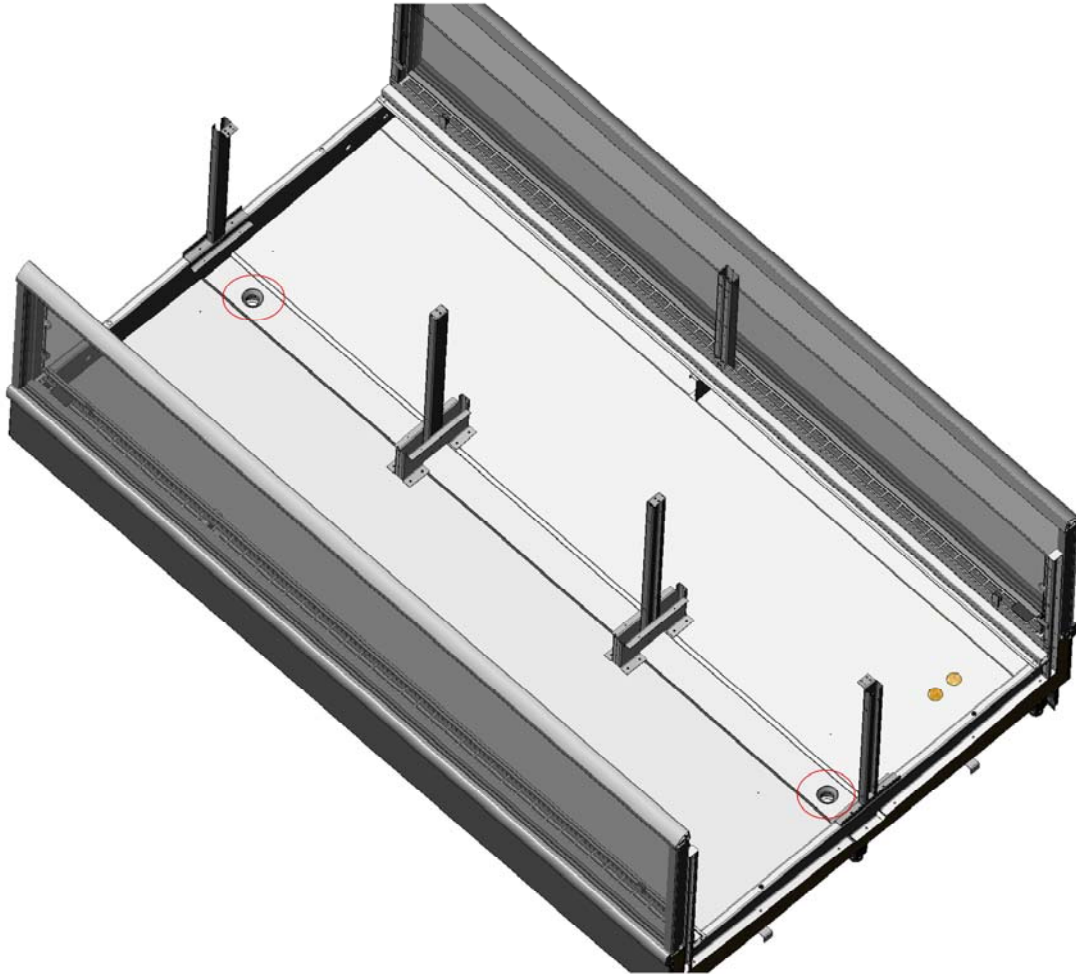


Figure19

Drainage of a piece to be installed to the cabinet;

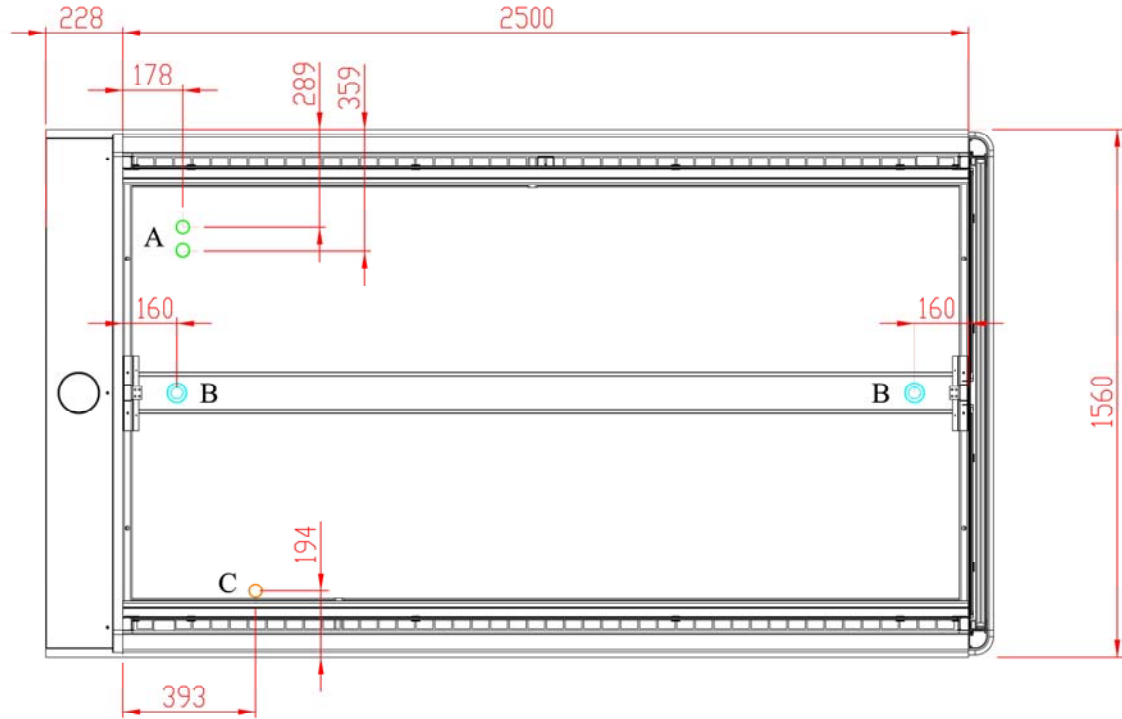


Figure20

Figure21

**15. Drainage, electrical box and copper pipe outlets**

According to the cabinet module drainage, electrical boxes and outlets for copper pipe is shown below. (Figure 22)



Şekil 22

**A : electric**

**B: drainage**

**C: copper pipe**

## **16. CARE AND CLEANING**

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these display Cases should thoroughly cleaned, all debris removed and the interiors washed down, weekly.



### **Fan Plenum**

To facilitate cleaning, the fan plenum is hinged and also fastened with screws at each end. After cleaning be sure the plenum is properly lowered into position and that screws are reinstalled OR PRODUCT LOSS WILL RESULT due to improper refrigeration.

### **Exterior Surfaces**

The exterior surfaces should clean with a mild detergent and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

### **Interior Surfaces**

The interior surfaces may cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface.

### ***Do NOT Use:***

Abrasive cleansers and scouring pads, as these will mar the finish.  
Solvent, oil or acidic based cleaners on any interior surfaces.

## **! WARNING**

**Do NOT use HOT water on COLD glass surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, ends and service doors to warm before applying hot water.**

### ***Do:***

Remove the product and all loose debris to avoid clogging the waste outlet.  
Store product is in a refrigerated area such as a freezer. Remove only as much product as can be taken to the freezer in a timely manner.

**First turn off refrigeration, and then disconnect electrical power.**

- Thoroughly clean all surfaces with soap and hot water. **DO NOT USE STEAM OR HIGH**

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**WATER PRESSURE HOSES TO WASH THE INTERIOR.**

THESE WILL DESTROY THE DISPLAY CASES SEALING CAUSING LEAKS AND POOR PERFORMANCE.

Remove screws and lift fan plenum for cleaning. BE SURE TO REPOSITION THE FAN PLENUM AFTER CLEANING DISPLAY CASE.

Take care to minimize direct contact between fan motors and cleaning or rinse water.

Rinse with hot water, but do NOT flood. **NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.**

Allow Display Cases to dry before resuming operation.

After cleaning completed, turn on power and refrigerant to the Display Case. Verify that Display Case is working properly

## **17. Recycle Parts**

All countries are disposing of waste according to EU laws and norms

### **Current Recycle Parts on the case**

Painted Metals :Pillars ,shelves ,legs, back panel, base tray, ceiling

Copper, Aluminium :Evaporator and electrical parts

Stainless Steels :Bottom panels painted panels ,basic parts , base tray

Polyurethane :Thermal injection

Thermopane :Glass parts

PVC :Handrails

Polystyrene :Side endwalls

Polycarbon :Led Lighting cover



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**Spare Parts**

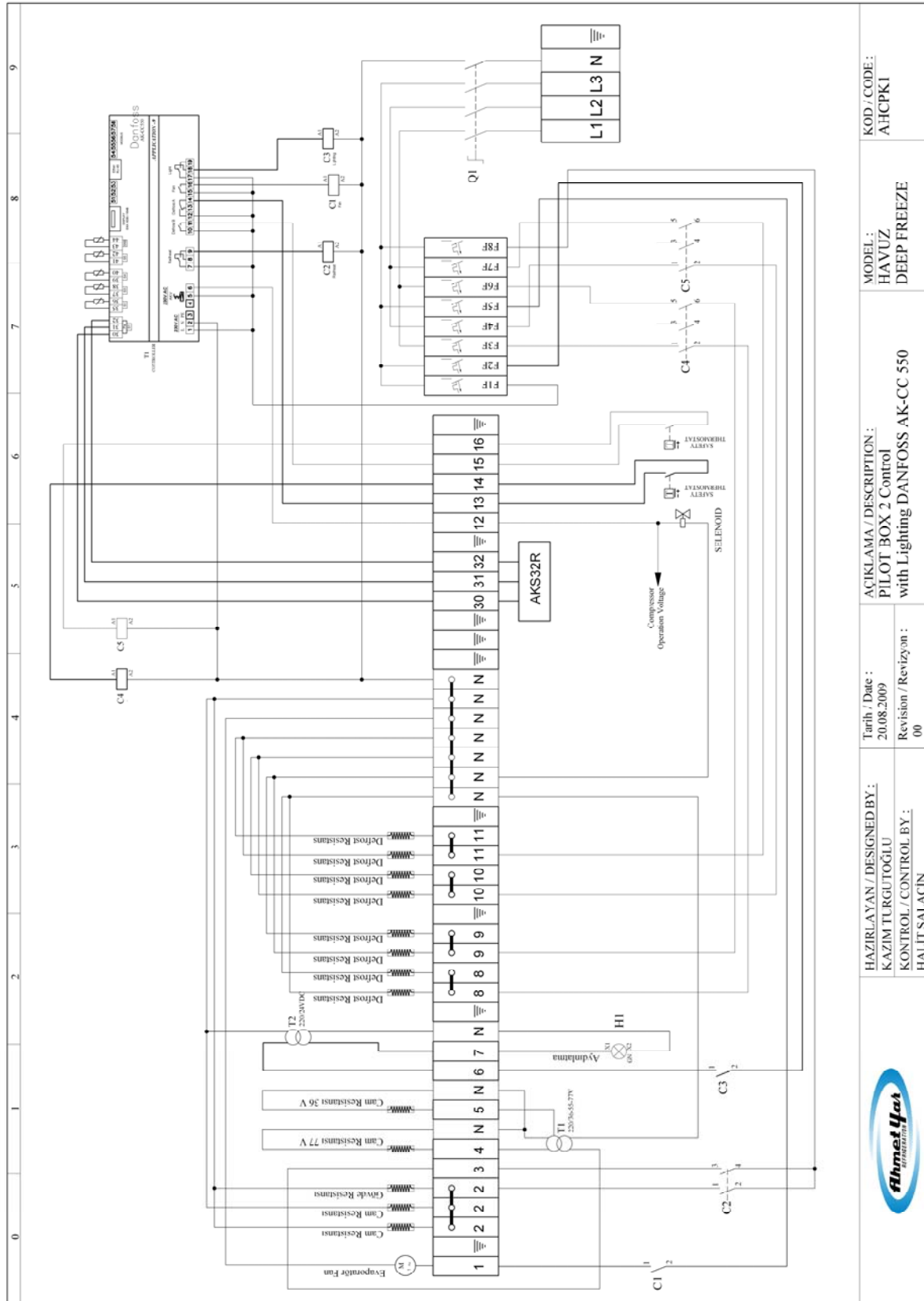
INPROGRESS



**AH DV1 PART LIST**

ITEM	PART NAME
1	AH DV1 BODY
2	AH DV1 SIDE PILLAR COMPLE
3	AH DV1 MIDDLE PILLAR ASSEMBLY
4	AH DV1 LEG ASSEMBLY
5	AH DV1 FRONT BASE SHEET ASSEMBLY
6	AH DV1 FRONT BASE SUPPORT SHEET
7	AH DV1 BACK BASE SEAT SHEET PAINTED
8	AH DV1 HONEY COMB BOTTOM SHEET PAINTED
9	DF HONEY COMB (h:25 mm) (en:75 mm ,boy:1250 mm)
10	AH DV1 FAN ASSEMBLY
11	AH DV1 EVAP SHEET
12	AH DV1 EVAP ASSEMBLY
13	AH DV1 BY-PASS SHEET
14	HD-102 DF GLASS SIDE PROFILE SPECIAL AHOLD COLOR
15	AH DV1 FRONT THERMOPANE 546x2475xÖZEL
16	CABLE REZIS GLASS TOP-BOTTOM
17	BEHR GLASS COVER SYSTEM COMPLE
18	IF GLASS TOP PROFILE NEW TYPE
19	IF INTERNAL PLEXGLASS SPECIAL
20	IF MIDDLE HEAD COMPLE
21	AH DV1 BASE TRAY COMPLE
22	SOLAR THERMOMETER
23	AH DV1 BUMPER HOLDER ALU.
24	AH DV1 BUMPER PROFILE NUVE 76025 RAL 9007
25	AH DV1 BOTTOM DECOR PAINTED
26	AH DV1 KICKPLATE COMPLE
27	AH DV1 AÜ-04



**Electrical Schemes**

**KOD / CODE :**  
AHC PK1

**MODEL :**  
HAVUZ  
DEEP FREEZE

**AÇIKLAMA / DESCRIPTION :**  
PILOT BOX 2 Control  
with Lighting DANFOSS AK-CC 550

**Tarih / Date :**  
20.08.2009

**HAZIRLAYAN / DESIGNED BY :**  
KAZIM TURGUTOGLU  
**KONTROL / CONTROL BY :**  
HALIT SALACIN

**Revision / Revizyon :**  
00

